

REMARKS

Applicant appreciates the Interview granted by Examiner Robert J. Scruggs on March 15, 2011. Independent claims 1, 6 and 17 have been amended to include the additional features that were discussed during the Interview.

The foregoing claim amendments also address the issues on pages 2-3 of the office action and have antecedence in the original specification. No new matter has been added. Entry and allowance are respectfully requested.

The above amendments positively recite the structure of the supporting apparatus in the independent claims. No new matter has been added by this amendment.

The following addresses the rejections in the Office Action.

Reconsideration and allowance of the claims as amended are requested.

Claims 1-4, 6-9, 10-13, 17 and 18 would not have been obvious from a combination of Platt (US 1,666,347), Rosa (US 6,113,472), Heuze (US 1,864,832) and Oya (US 4,078,905) as amended. Claims 1-4, 6-9, 10-13, 17 and 18 are nonobvious under 35 U.S.C. § 103(a).

A prima facie obviousness determination requires that the prior art reference or combined references must teach or suggest all of the claim limitations. A claim limitation in the claimed invention that is neither taught nor suggested by the references cited by the examiner must defeat a 35 U.S.C. § 103(a) obviousness rejection. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983).

Claims 1 and 6:

The examiner cites Platt for, *inter alia*, the disclosure that the drive shaft (20) is driven by a motor. However, only one motor is contained in the totality of the Platt invention. Drive chains (14) and (22) of Platt, the examiner must agree, are therefore propelled by one, solitary motor. The examiner concedes that Platt lacks the additional element of grinding motors for each grinding head, which is disclosed in the applicant's claimed invention.

The examiner then relies upon Rosa for this missing feature; yet Rosa does not contain this feature. Specifically, the examiner asserts that Rosa "teaches a technique of providing a plurality of grinding heads (4) (Figures 6 and 17) with a motor (82), respectively, that individually rotates said grinding head and wherein said grinding heads are capable of moving vertically up and down with respect to the workpiece."

As amended, claims 1 and 6 contain two additional features that are not taught or suggested in the prior art. First, claims 1 and 6 contain the feature of grinding elements that are connected to grinding motors with movable shafts, where vertical displacement of the shaft is induced by a ball/bowl joint that is connected to and displaces the movable shaft. The item is configured such that the grinding head may make contact with an item whose work surface is non-uniform. Second,

claims 1 and 6 contain the feature wherein the grinding elements are in contact with both sides of the surface of the work piece. Because these two additional features listed in claims 1 and 6 are neither taught nor suggested in the references cited by the examiner, claims 1 and 6, as well as all claims that depend therefrom, are therefore nonobvious and should be allowed.

The examiner uses Rosa for the feature of heads that are capable of moving vertically up and down with respect to the workpiece as grounds to reject claims 1 and 6. However, no such feature is contained in either amended claims 1 or 6 of the present invention.

If, *arguendo*, the examiner intended the rejection of this feature under dependent claim 3 of the claimed invention, this rejection must also fail. Claim 3 adds the further limitation of a support arrangement that is adjustable in height arranged by means of a number of displacing force providers (12) (*See* Fig. 1; *see also* paragraph [0070]). Rosa states that the vertical displacement of the rotating heads (4) is a function of the current which causes the heads to move away from the surface when the engine (82) requires more current (*See* col. 6, lines 7-12). Thus, Rosa's vertical displacement does not contain the additional feature of claim 3 and, therefore, is nonobvious from the references cited by the examiner.

Finally, the examiner notes that, as taught by Rosa, "one could individually maintain constant pressure at different locations thereby removing material from the surface of the workpiece."

Yet, as the foregoing has explained, Rosa does not maintain constant pressure at different locations, but diminishes pressure from increased resistance of the surface with the rotating disk.

Therefore, the applicant respectfully traverses this rejection and requests that it be withdrawn as a matter of course.

Claims 2 and 10:

“All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Arguments in the foregoing paragraphs concerning claims 1 and 6 are incorporated into the following claim arguments which depend from claims 1 and 6. Therefore, the following dependent claims are nonobvious because they depend from independent claims 1 and 6, which are patentable and nonobvious.

Platt discloses chains (14) and (22) where the grinding elements move as a result of the rotation of the drive chains in opposite directions, wherein element (13) is attached to chain (14) (*See* Fig. 5). Thus, as a result of having each grinding element fixed to one of the chains, rotation of individual grinding elements and annular motion can only be said to be a function of not more than one of the chains – *i.e.*, chain (22).

In contrast, Claims 2 and 10 adds the further limitation of a conveyor (9) that is constituted by a number of drive chains which are adapted for engaging with a drive wheel (11) driven by the moving motors (5). Because claims 2 and 10 limit the claimed invention by claiming more than one drive chain, Platt is an improper reference because it cannot be said that it contains more than one drive chain independent of the other.

Claims 3, 11 and 18:

Claim 3, 11 and 18 each contain the further limitation that the frame (7) may be adjusted in height by a number of displacing force providers height which is approximately parallel to the plane of the work surface.

In contrast, Rosa does not contain this limitation because it is not adaptable to planar work surfaces. Therefore, claims 3, 11 and 18 are patentable and nonobvious.

Claims 4, 12 and 13:

Claims 4 and 12 have been cancelled.

Respecting claim 13, each adds the further limitation to the claimed invention a movable shaft whereby items with non-uniform thickness may be ground on the top side face, such that the grinding elements will follow the contour of the surface of the item.

Rosa is cited for the feature in claim 13 of the applicant's invention. Rather, as previously noted, vertical displacement of the rotating heads (4) in Rosa is controlled as a function of the current which causes the heads to move away from the surface when the engine (82) requires more current (*See* col. 6, lines 7-12). No such element in Rosa is claimed in the applicant's invention.

Thus, Rosa's vertical displacement does not contain the additional feature of claim 3 and, therefore, is nonobvious from the references cited by the examiner.

Claim 7:

Claim 7 adds the further limitation wherein the endless conveyor includes at least one long side perpendicular to a plane of movement to an underlying conveyor conveying the work-piece.

The examiner cites the Platt reference for this feature. However, as previously noted, Platt does not contain the combined features of a grinding motor driving an associated grinding element and at least one moving motor coupled to the endless conveyor as disclosed in claim 6 of the applicant's invention from which claim 7 depends. Because independent claim 6 has been shown to be nonobvious, dependent claim 7 is therefore also nonobvious and the rejection should be withdrawn.

Claims 8 and 9:

Platt is cited for the feature of an endless conveyor that includes one or more drivers formed as a driving chain (14). However, Platt does not contain the combined features of a grinding motor driving an associated grinding element and at least one moving motor coupled to the endless conveyor as disclosed in claim 6 of the applicant's invention from which claims 8 and 9 depend. Therefore, claims 8 and 9 are nonobvious because Platt, alone or in conjunction with the other references cited by the examiner, does not teach, suggest, or provide some motivation for combining every element of the claimed invention.

Claim 17:

All the limitations of a claim must be considered when weighing the differences between the claimed invention and the prior art in determining the obviousness of a process or method claim. *See* MPEP § 2116.01. “Thus, proper claim construction requires treating language in a process claim which recites the making or using of a nonobvious product as a material limitation.” *Id.*

As amended, claim 17 contains two additional features that are not taught or suggested in the prior art. First, claim 17 contains the feature of grinding elements that are connected to grinding motors with movable shafts, where vertical displacement of the shaft is induced by a ball/bowl joint that is connected to and displaces the movable shaft. The item is configured such that the grinding head may make contact with an item whose work surface is non-uniform. Second, claim 17 contains the feature wherein the grinding elements are in contact with both sides of the surface of the work piece. Because these two additional features listed in claim 17 is neither taught nor suggested in the references cited by the examiner, claim 17, as well as all claims that depend therefrom, is therefore nonobvious and should be allowed.

Platt and Rosa in combination cannot be read onto Claim 17 to satisfy the requirements of a § 103 obviousness rejection because not all material limitations in the claim are contained in the references cited by the examiner. A materially limiting feature not found in the references is the coupling of grinding elements with individual grinding motors, an endless conveyor to the support structure in a plane perpendicular to a plane of the support structure, and at least one moving motor coupled to the endless conveyor. This process claim for the claimed invention contains combined features that are neither taught nor suggested by the references, alone or in

combination, as cited by the examiner. Therefore, claim 17 is nonobvious and patentable as claimed.

Claims 5, 14 and 19 would not have been obvious from a combination of Platt (US 1,666,347), Rosa (US 6,113,472), Heuze (US 1,864,832), Oya (US 4,078,905), Knost (US 2,985,989) and Price (US 2,901,868). Claims 5, 14 and 19 are nonobvious under 35 U.S.C. § 103(a).

Claims 5, 14 and 19 of the applicant's invention adds to the grinding apparatus the further limitation of first and second rows of the grinding elements which are arranged to move in directions perpendicular to the direction of motion of an object on the *underlying* conveyor, wherein the **object's surface opposite the underlying conveyor is in contact with the grinding element**, wherein **one or more grinding elements rotate in a different direction** than one or more other grinding elements, and wherein the **second row of grinding elements rotate in a direction opposite to the first row** of grinding elements.

The applicant may be his own lexicographer and, therefore, claim language must be read in light of the specification from which the examiner is to derive a term or purpose that is expressly set forth. Paragraph [0031] of the application expressly sets forth the following: "The different directions of rotation of subsequent grinding elements cause that [sic] the grinding apparatus advantageously may be used." Thus, reading in light of the claim language, the grinding surface

of the workpiece must interact with at least two rows of separate and distinct grinding heads that are rotating in the opposite direction.

The examiner cites Knost for teaching a technique of rotating multiple grinding elements in opposite directions. The examiner then cites Price for teaching a technique of rotating a row of grinding elements (20) in an opposite direction from a second row of rotating elements. Yet no part of Knost, nor any part of Price, has taught or suggested the feature of successive rows which rotate in opposite directions relative to a given grinding surface.

The examiner's reference to Price is improper because of the way rows have been defined in the application of the claimed invention. In the claimed invention, rows of grinding elements are given meaning relative to the surface of which they are to contact. Price shows two distinctly differently polishing surfaces per brick (Figure 2, which has three rows). Each surface is of the brick is confronted with the same directional rotation of the polishing surface. This treatment of the surface is difference than the treatment of the surface as claimed in the claimed invention. Therefore, the examiner has not shown that each and every claim limitation has been taught or suggested by the references, and the obviousness rejections should be withdrawn and the claims should be allowed.

Moreover, the grinding elements in the first and second rows of the claimed invention must contact the workpiece on the surface that is opposite the surface the is in contact with the underlying conveyor. In contrast, Price makes contact with the sides of the workpiece in two

different places that is not opposite the surface of the underlying conveyor. Therefore, neither Knost nor Price teach or suggest this feature.

Claims 15, 16 and 20 would not have been obvious from a combination of Platt (US 1,666,347), Rosa (US 6,113,472), Heuze (US 1,864,832), Oya (US 4,078,905) and Price (US 2,901,868). Claims 15, 16 and 20 are nonobvious under 35 U.S.C. § 103(a).

Claim 15:

Claim 15 adds the further limitation wherein the plural the grinding elements in the first and second rows of the claimed invention must contact the workpiece on the surface that is opposite the surface the is in contact with the underlying conveyor. In contrast, Price makes contact with the sides of the workpiece in two different places that is not opposite the surface of the underlying conveyor. Therefore, citation of Price for this feature is improper and the rejection should be withdrawn.

Claim 16 and 20:

Claims 16 and 20 add the further limitation to claims 15 and 17, respectively, wherein the second row of grinding elements have a direction of rotation opposite to a direction of rotation of the first row of grinding elements. The examiner's citation to Price for this feature is improper because of the way rows have been defined in the application of the claimed invention. In the claimed invention, rows of grinding elements are given meaning relative to the surface of which

they are to contact. Price shows two distinctly differently polishing surfaces per brick (Figure 2, which has three rows). Each surface of the brick is confronted with the same directional rotation of the polishing surface. This treatment of the surface is different than the treatment of the surface as claimed in the claimed invention. Therefore, the examiner has not shown that each and every claim limitation has been taught or suggested by the references, and the obviousness rejections should be withdrawn and the claims should be allowed.

The invention as claimed is nonobvious, the rejections for § 103(a) obviousness should be withdrawn, and the claims should be allowed.

CONCLUSION

Reconsideration and allowance are respectfully requested.

Respectfully,

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